

Remarks:

As examined, the Subject Application includes claims 32-63. Claims 32 and 33 are directed to a method of making a tool holder, claims 34-47 and 61-63 are directed to a cutting tool, and claims 48-60 are directed to a cutting tool holder. In the Office Action, the Examiner finally rejects each of the pending claims under one or the other of 35 U.S.C. §§ 102(b) and 103(a).

Specifically, the Examiner rejects claims 32-40, 42, and 43 under § 102(b) as being anticipated by U.S. Patent No. 6,164,878 to Satran (“Satran”). The Examiner asserts, *inter alia*, that Satran discloses a cutting tool holder including at least one insert pocket (52 in Satran) and at least one antirotation stop corresponding to the insert pocket and, wherein the antirotation stop comprises substantially planar surface (66,68,70) and is integral to a bottom surface and a side surface of the insert pocket. The Examiner further asserts that the antirotation stop of Satran indexes a cutting insert. Regarding the method claims 32 and 33, the Examiner merely states that “the Satran et al reference inherently discloses the method.”

The Examiner rejects claims 48-63 under § 103(a) as having been obvious in view of Satran. Regarding claims 48, 58, 62, and 63, the Examiner asserts that it would have been “an obvious matter of design choice” to modify Satran and “make the different portions of the recess of whatever form or shape was desired or expedient”, and that no new or unexpected results were derived from such modifications. Regarding claim 49, the Examiner asserts that it would have been obvious to one having ordinary skill to use the recited material. Finally, regarding claims 59 and 60, the Examiner asserts that it would have been obvious to locate the antirotation stop in the recited position “since it has been held that rearranging parts of an invention involves only routine skill in the art.”

In the present response, claims 34, 42, and 48-60 have been canceled. Each of claims 35-41, 44-47, and 61-63 are amended to recite a method of making a tool, and several of these claims also are amended to provide suitable dependency. Thus, on

entry of the amendments herein, claims 32, 33, 35-41, 44-47, and 61-63 remain pending in the Subject Application, and all such claims are directed to a method of making a tool holder. The single independent claim that remains pending on entry of the present amendments is claim 32, which recites:

32. A method of making a tool holder, comprising:

tangentially milling at least one antirotation stop and an insert pocket in the tool holder, wherein the antirotation stop comprises at least two substantially planar surfaces and protrudes from a side wall of the insert pocket.

Thus, if it is shown that independent claim 32 is directed to patentable subject matter, it follows that all claims remaining pending in the Subject Application on entry of the amendments herein will be in condition for allowance. Applicants respectfully submit that the method recited in claim 32 is not identically disclosed in Satran, and also would not have been obvious in view of Satran taken alone or in view of other prior art of record and the ordinary skill in the art. Applicants arguments follow.

For a reference to anticipate a claim under § 102(b), it must disclose, either expressly or inherently, each and every element and limitation of a claim. See MPEP § 2131. Satran cannot anticipate claim 32 for at least the reason that Satran does not disclose each and every element recited in the claim 1. Claim 32 is directed to a method of making a tool holder that includes “tangentially milling” both an antirotation stop and an insert pocket in the tool holder, and wherein the antirotation stop tangentially milled in the insert pocket “protrudes from a side wall in the insert pocket”.

The Examiner asserts, without providing any explanation of other rationale, that Satran “inherently discloses the method”. The Examiner is required to set forth in an Office Action some reasonable basis for an assertion of inherency. MPEP § 2112(IV) states the following regarding the use of inherency to reject claims:

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. [citations omitted] “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter

is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " [citations omitted] ...

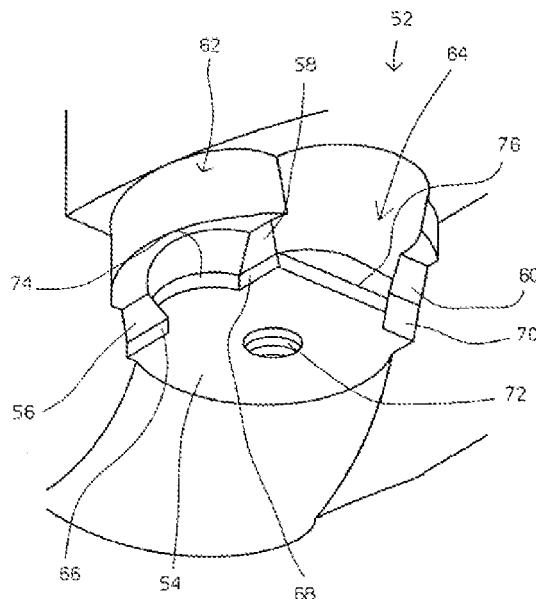
(Emphases added.) MPEP § 2112(IV) also states that "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." (Emphasis added.)

Satran does not teach that the tool holder illustrated and described in that reference was made by a method involving tangential milling. The Examiner has not provided any rationale in the Office Action for his assertion of that such a teaching is inherent in Satran. Instead, the Examiner apparently concludes that it is possible that the tool holder illustrated in Satran was made by a method involving tangential milling. As stated in the above excerpt from the MPEP, however, the mere possibility that tangential milling was or could have been used is not a sufficient basis for an anticipation rejection based on inherency. Therefore, the Examiner has not properly supported his assertion that the method recited in claim 32 (and claim 33) is inherently anticipated by Satran and must either withdraw the anticipation rejection asserted against claims 32 and 33 or reissue the Office Action and therein set out the required "basis in fact and/or technical reasoning" to satisfy the threshold burden of establishing an anticipation rejection based on inherency.

Even if the Examiner had presented evidence or argument sufficient to establish a *prima facie* case of anticipation based on Satran, such a rejection could not be maintained because, in fact, the tool holder illustrated in the figures of Satran could not have been made by a process including tangentially milling the insert pocket (52) or the structures in the insert pocket that include any of surfaces (66,68,70). Satran's Figure 4 is an enlarged perspective view of the insert pocket (52) of the tool holder shown in the Satran's Figure 3. As shown in Figure 4, reproduced below, the insert pocket (52) is geometrically formed and includes: bottom surface (54); three lateral surfaces

(56,58,60); four vertical surfaces (66,68,70,76) connecting to the bottom surface (54); two curved and recessed lateral surfaces (62,64) located in an upper region of the pocket (52); an additional curved and recessed lateral surface (74) connecting and perpendicular to bottom surface (54); and yet an additional curved and recessed lateral surface (not numbered), just above surface (74). Given its geometry, the insert pocket (52) could not have been machined fully by tangential milling because the four identified

FIG.4



curved and recessed lateral surfaces could only be formed by an end milling tool that is advanced into the workpiece in the axial direction, *i.e.*, generally along an axis perpendicular to the plane of the bottom surface (54). This type of milling is commonly known as “axial” milling or “conventional” milling. In contrast, in the tangential milling operation included in the method recited in claim 32 the end milling tool necessarily advances into the workpiece and machines the pocket in a direction that is generally parallel or tangent to the insert pocket’s bottom surface.

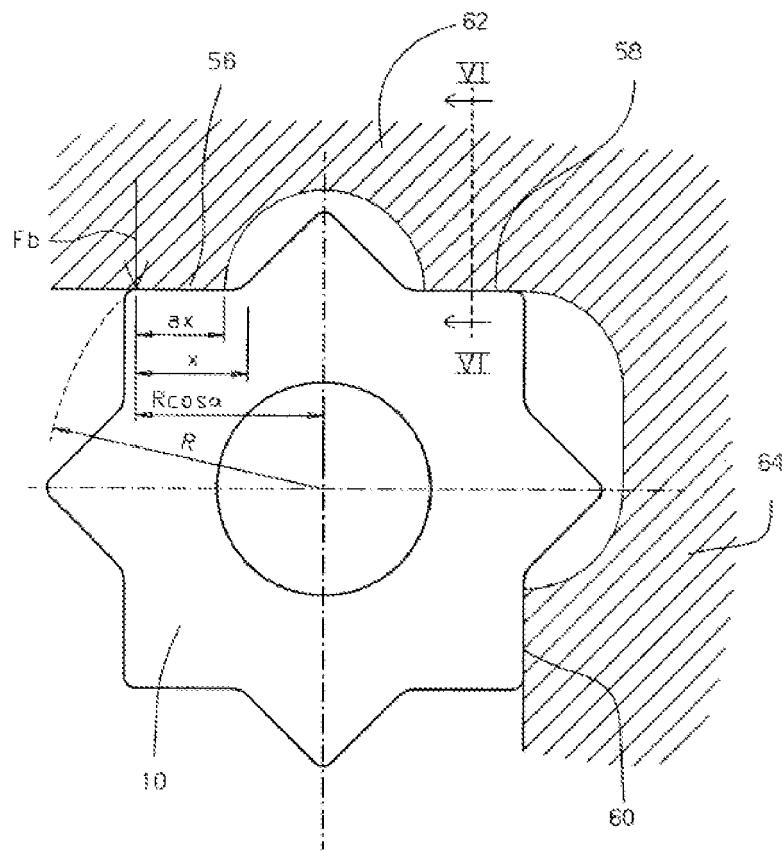
As confirmed by the attached Declaration of X. Daniel Fang, an inventor named on the Subject Application, it is not possible to machine an insert pocket having the geometry depicted in Figure 4 of Satran by tangential milling, whether using an end

milling tool with either a ballnose or a straight edge without a nose, because the pocket (52) includes curved and recessed surfaces (such as lateral surface (74)) that extend in a direction that is neither parallel nor tangent to the bottom surface (54). Instead, the several curved and recessed surfaces in the insert pocket (52) extend in a direction that is normal to the bottom surface (54). In other words, the curved and recessed surfaces included in Satran's insert pocket (52) necessarily were shaped using a milling tool advancing along an axis that is generally perpendicular to the bottom surface (54). This fact is confirmed by the sectional view of Satran's Figure 5, which shows two of the several curved and recessed surfaces, one recessed in walls (56,58), and other recessed in wall (60). In short, the several curved recessed surfaces that form walls of the insert pocket could not have been formed by tangential milling. Therefore, even if the Examiner had met the threshold burden to establish a proper rejection of claims 32 and 33 under § 102(b) based on inherency, that rejection could not stand given that tangential milling could not have been used to form the insert pocket (52) shown in Figures 3-5 of Satran.

In addition to reciting tangential milling, claim 32 also recites that that milling operation provides "at least one antirotation stop ..., wherein the antirotation stop comprises at least two substantially planar surfaces and protrudes from a side wall of the insert pocket." In the Office Action, the Examiner asserts that Satran's Figure 4 depicts a tool holder including an antirotation stop comprising surfaces (66,68,70) that are substantially perpendicular to bottom surface (54), and wherein the antirotation stop is "integral to the bottom surface and a side surface of the insert pocket, and each of the insert pockets comprises a side wall for engaging an insert (10)." Applicants submit, however, that Satran does not disclose or suggest a tool holder including an antirotation stop that "protrudes from a side wall" of the tool holder's insert pocket.

Satran discloses a cutting tool assembly including a tool holder and a cutting insert having a polygonal lower flank surface. Each of at least two contact regions on the lower flank surface of the cutting insert contacts a corresponding contact region on an abutment surface of the tool holder of Satran. In this arrangement, the flank surface

of the cutting insert contacts the abutment surface of the tool holder in a "linear" or "planar" fashion, wherein a planar portion of each of at least two contact regions on the flank surface of the cutting insert contacts a corresponding planar portion of two contact regions on the abutment surface of the tool holder. Satran's Figure 5 shows this abutting arrangement between the insert and the pocket:



Satran Figure 5

Column 8, lines 51-57 of Satran refers to Figure 5 and describes the planar abutting arrangement between surfaces of the cutting insert and the insert pocket as follows:

Each [insert] pocket 52 is formed with a base abutment surface 54 for supporting the base [of the cutting insert], and at least two, and preferably three, lateral abutment surfaces 56, 58, and 60 located for abutting angularly spaced abutment surfaces 38 provided by cutting insert 10. The combination of these lateral abutment surfaces provides a lateral support/restraint system structurally capable of resisting considerable torque.

Thus, in Satran the corresponding planar abutting regions of the flank surface of the polygonal cutting insert and abutment surface of the insert pocket are designed (*i.e.*, shaped) to be complementary to one another so that the corresponding surfaces match up precisely with one another when the cutting insert is positioned in the insert pocket of the tool holder and is secured there by a screw. Any torque imposed on the cutting insert is counteracted by the simultaneous linear contact between the corresponding planar portions of the flank and abutment surfaces.

Figure 5 clearly shows that Satran does not disclose an arrangement wherein an antirotation stop “protrudes from a side wall of the insert pocket.” In fact, as Figure 5 shows, Satran describes the opposite arrangement, wherein a protruding portion of the insert is received in a recess in a side wall of the insert pocket. Figure 5 clearly shows that the surfaces (66,68,70) of Satran’s insert pocket to which the Examiner refers are not protrusions from the side wall of the insert pocket. Instead, surfaces (66,68,70) are simply regions of the side wall of the insert pocket (52) and are not protrusions.

That the arrangement described is Satran is at odds with what is recited in claim 32 of the Subject Application is further confirmed by considering the non-limiting embodiment illustrated in replacement Figure 3 of the Subject Application, reproduced below. An antirotation stop (including surfaces 35,36) protrudes from the side wall and bottom surface 37 of the depicted insert pocket. When a suitably designed cutting insert is disposed in the insert pocket of the embodiment shown in Figure 3, the protruding antirotation stop at least partially extends into a recess provided in the cutting insert. (Indeed, this aspect is specifically recited in the Subject Application’s claim 44, as amended herein.) Satran clearly does not describe or suggest such an arrangement wherein an antirotation stop protruding from a wall of the insert pocket extends into a recess in the cutting insert. Instead, Satran describes an insert pocket including a recess into which extends a protruding portion of a cutting insert positioned in the insert pocket.

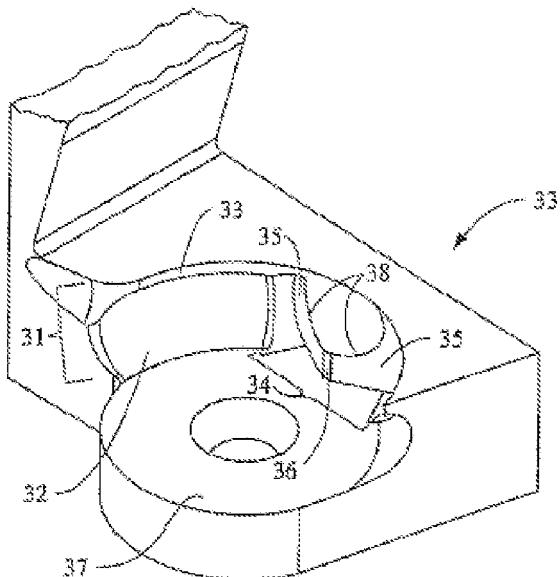


Figure 3

Because Satran teaches an insert pocket design that is the opposite of what is recited in claim 32 of the Subject Application, Satran actually teaches away from the arrangement recited in claim 32. This is powerful evidence that the insert pocket design recited in claim 32 of the Subject Application would not have been obvious over Satran. See MPEP 2141.02 (“A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.”) (citing *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983).

Therefore, assuming *arguendo* that the Examiner has satisfied the threshold burden for establishing an anticipation rejection relative to claim 32, that rejection should be withdrawn. Satran does not expressly or inherently disclose, and also does not suggest, a method of making a tool holder that includes tangentially milling an antirotation stop and an insert pocket . In addition, Satran does not disclose or suggest a tool holder including an antirotation stop that protrudes from a side wall of the tool holder's insert pocket. Given that claim 32 recites a method that is patentable relative to the references of record, it follows that claims 33, 35-41, 44-47, and 61-63 are patentable as each such claim depends directly or ultimately from claim 32.

Conclusion:

Applicants assert that the claims of the Subject Application, as amended herein, are directed to subject matter that is patentable over the cited references. As such, Applicants respectfully request that the Examiner enter the amendments submitted herein and issue a Notice of Allowance at an early date.

Applicants' present response should not in any way be taken as acquiescence to any of the specific assertions, statements, etc., presented in the Office Action not explicitly addressed herein. Applicants reserve the right to specifically address all such assertions and statements in subsequent responses.

If the Examiner is of the opinion that the Subject Application is in condition for disposition other than allowance, Applicants respectfully request that the Examiner contact Applicants' attorney at the telephone number listed below so that those concerns may be addressed.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Henry W. Oliver".

Attorney for Applicant

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